# THE BODY TRAINS THE BRAIN: Brain Development and Motor Learning

Early and appropriate movement experiences build neural connections in the brain. Balance, manipulation, rhythms, midline activities, vestibular activities, and perceptual-sensory activities assist learning.

Reflection:

- When do children have the opportunity to experience physical activity and play?
- What types of physical activities do we encourage in child care and in homes?
- What do children learn while playing?

Movement enhances:

Early brain development
Neurological organization
Sensory integration (vestibular, proprioceptive, and tactile processing)

Sensory integration refers to how people use the information provided by all the sensations coming from within the body and from the external environment
- vestibular consists of processing information about movement, gravity and balance, primarily received through the inner ear;
- proprioceptive is processing information about body position received through the muscles, ligaments and joints and
- tactile processing is processing information about touch received primarily through the skin,

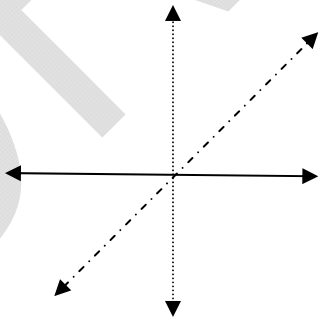
Visual processing - the sequence of steps that information takes as it flows from visual sensors to cognitive processing.
Auditory processing - the ability to hear auditory messages or sounds
Bilateral coordination - the use of both sides of the body together to perform a task efficiently
Hand-eye coordination - the coordinated control of eye movement with hand movement, and
Motor planning – a person's ability to think through and physically carry out a task.

The brain and the body can be thought of a coordinated unit. The brain supports all motor function and works together with the body to try to execute any task that a body asks of it.
Our brain is divided front to back by the motor cortex, making movement one source of stimulation that impacts all areas of the brain. Nerve cells are designed to send electrical messages from one part of the brain to another, or from the brain to different parts of the body. The electrical messages travel through a neuron as an electrical message, and across a gap to the next neuron. These gaps are known as synapse. By age 3, 80% of the neural networks (connections numbering 15,000 for each brain cell) are already made. Myelin is a fatty substance that coats the nerve pathways and helps speed the

transmission of electrical signals down, allowing much faster communications from the brain to the muscles.
The young brain already holds billions of nerve cells (neurons) necessary throughout the lifespan and the synapses are formed by early childhood experiences. These connections can be retained or destroyed, depending on their use. Movement and physical activity are primary brain builders.

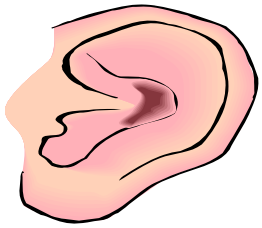
Brain networks are strongest in early childhood. **Physical activity stimulates the body to create a hormone that acts like Miracle Gro for the brain. (John Rate, MD, Harvard psychiatrist).** The developing brain uses incoming sensory, perceptual, and movement information to define and "wire" the young child's brain. Consistent, repeated, and multisensory learning experiences strengthen brain network connections. These experiences lead to gains in cognitive understanding and an increased ability to retrieve the information in new situations. The ability to make different movements with different sides and parts of the body at the same time is actually a learned skill that children develop over time. When children are young, they find it difficult to reach across the body with the right hand to reach something on the left, or vice versa. As they develop an awareness of midlines, children learn to make both sides of the body work together, and new pathways are made between the two hemispheres (sides) of the brain.
There are three midlines that run down the center of the body—one that divides left from right, one dividing top from bottom and one dividing front from back. Developing an awareness of midlines is important, as it allows children to start to coordinate movements on both sides of the body. Physical movements that cross the midline need to be introduced.

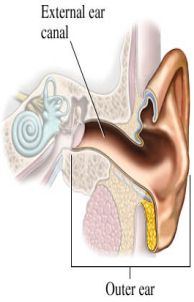
Left/Right (x) Top/Bottom (y) Front/Back (z)

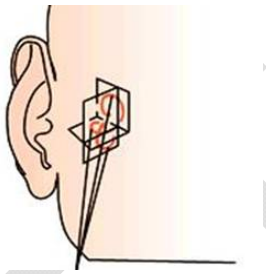


The vestibular system is what controls a person's motion awareness and stabilizing abilities in a shared space. The ear is the most fully developed of the sense organs at birth. Children love to make objects and their bodies fit into and around spaces. When they do this, they are learning about space and how much of it they take up. This is called "spatial awareness." Children need to gain an understanding of spatial awareness to figure out how to move themselves and objects around without knocking things over or banging into other things. When children try to move objects around and fit them into particular spaces, they also

learn about the spatial concepts of “directionality” (which way things need to go) and “constancy” (the idea that even though a shape may look different when it is turned differently, it is still the same shape). Children with poor spatial awareness may be clumsy and often bump into things, or they may write above or below the lines, or with no spaces between words.





Judging distance and time, what experts call “temporal awareness,” is a complex skill that takes a long time to develop and perfect, so it is important for children to start learning it as early as possible. When children have a good grasp of temporal awareness, they can estimate how fast objects travel—and coordinate their movements with the speed of an object. Temporal awareness is the same skill that children will use later when they’re judging the speed of cars before they cross the street or up to bat in their first Little League game!

*FEED THE BRAIN*

The body needs healthy nutrition, oxygen, and water. A healthy balance of fruits, veggies, protein, and whole grains supplies glucose to the developing brain and the brain of a 4 - 5 year old uses twice as much glucose as an adult. Oxygen is required for the brain, more than any other organ or the body because of it high rate of metabolism. Lack of oxygen impairs learning and attention. Moderate to vigorous physical activity is needed to pump blood to transport oxygen to the brain and enhance neuronal connectivity during the critical period. Children’s bodies are made of 65% water. Their brains are 85% water. A child’s brain needs water throughout the day to function properly and because children metabolize faster than adults, they can become dehydrated faster than adults.

*OPPORTUNITY KNOCKS*

In order to build and pave the highways for communication between body and brain, opportunity knocks at the time of early childhood. Children progress in their acquisition of both gross and fine motor skills as a result of a combination of brain maturation and muscle development. It happens in a fairly orderly and implied sequence in most children. Fine and gross motor abilities are all acquired gradually through continuous interaction with the environment. This is known as skill learning and is thought to be hard wired into all of us, as long as we get enough freedom to practice.

# PHYSICAL ACTIVITY SELF-ASSESSMENT FOR CHILD CARE

## GETTING STARTED:

**Purpose:** To guide providers through the self-assessment by clarifying questions and providing a term glossary.

**General Instructions:** When completing this instrument, it is important to honestly assess your facility's environment so you can set and meet goals to improve the physical activity environment, policies and practices. When answering the questions, keep in mind what your facility does a majority of the time as your practices may fall into more than one category. Be sure to involve any key staff members that may help in answering questions.

- Active play time is described as indoor or outdoor play time, which allows children to be able to run, skip, hop, jump, etc. This type of play time does not have any limitations.
- Teacher-led physical activity refers to an activity that is led by the teacher, promotes active movements and is designed so all young children are **active participants**.
- Withholding active play time for misbehavior is defined as making a child sit inside or outside for an extended period of time or shortening active play time for the entire class. It is not defined by short time-outs.
- Staff physical activity education and training includes education on specific areas related to physical activity such as ways to reduce sedentary time while at child care, ways to increase movement throughout the day, what are developmentally appropriate gross motor activities, etc.
- Physical activity education for children should include motor skill development.
- A written policy on physical activity that covers most of the above topics refers to policy that focuses on increasing physical activity at child care and mentions key areas including:
    - Active Play and Inactive Time
    - Play Environment
    - Supporting Physical Activity
    - Physical Activity Education for Staff, children, and Parents

Term Glossary:

*Informal education*: Discussion with the children by teachers that is not part of a formal lesson. This may include talk about that day's physical activity and how it is good for the body or talk on the playground about how running builds strong muscles.

*Standardized curriculum:* This can be a pre-existing curriculum such as Color Me Healthy, I Am Moving, I Am Learning, or it can be lessons put together by the teacher. Formal physical education would be part of the lesson plan.

Please read each statement or question carefully and check the response that best fits your child care facility. Refer to the instruction sheet for clarification of question, examples, and definitions.



| Active Play and Inactive Time | | | | |
|---|---|---|---|---|
| **A.** Active play time is provided to all children: | □ Less than 60 minutes | □ 60 - 90 minutes | □ 91-120 minutes | □ More than 120 minutes |

| | | | | |
|---|---|---|---|---|
| | per day | each day | each day | each day |
| **B.** Teacher-led physical activity is provided to all children: | □ 1 time per week | □ 2 – 4 times per week | □ 1 time per day | □ 2 or more times per day |
| **C**. Outdoor active play is provided for all children: | □ 1 time per week | □ 2 – 4 times per week | □ 1 time per day | □ 2 or more times per day |
| **D**. Active play time is withheld for children who misbehave: | □ Often | □ Sometimes | □ Never | □ We provide more active play time for good behavior |
| **E**. Children are seated (excluding naps and meals) more than 30 minutes at a time: | □ 1 or more times per day | □ 3-4 times per week | □ 1-2 times per week | □ Less than once a week or never |
| **F**. Television and video use consists of the: | □ TV turned on for 5 or more hours per week | □ TV turned on for 3-4 hours per week | □ TV turned on 2 hours per week or less | □ TV used rarely or never |
| **Play Environment** | | | | |
| **A.** Fixed play equipment (tunnels, balancing equipment, climbing equipment, overhead ladders) is: | □ Unavailable at our site | □ Only one type of equipment is available | □ Different equipment available that suits most children | □ Wide variety of equipment available and accommodates needs of all children |
| **B.** Portable play equipment (wheel toys, balls, hoops, ribbons) consists of: | □ Little variety and children must take turns | □ Some variety but children must take turns | □ Good variety but children must take turns | □ Lots of variety for children to use at the same time |
| **C.** Outdoor portable play equipment is: | □ Available during special times only | □ Located out of child sight and reach, staff must access | □ Available on request | □ Freely available by children at all times |
| **D.** Outdoor play space includes: | □ No open running spaces or track/path for wheeled toys | □ Very limited open running space, no track/path for wheeled toys | □ Plenty of open running space, no track/path for wheeled toys | □ Plenty of open running spaces and a track/path for wheeled toys |
| **E.** Indoor play space is available: | □ For quiet play only | □ For very limited movement (jumping and rolling) | □ For some active play (jumping, rolling and skipping) | □ For all activities, including running |

| | | | | |
|---|---|---|---|---|
| **Supporting Physical Activity** | | | | |
| **A.** During active play time staff: | □ Supervise play only (mostly sit or stand) | □ Sometimes encourage children to be active | □ Sometimes encourage children to be active and join children | □ Often encourage children to be active and join children in active |

| | | | | |
|---|---|---|---|---|
| | | | in active play | play |
| **B**. Support for physical activity is visibly displayed in 2 to 5 year old classrooms and common areas by: | □ No posters, pictures, or books about physical activity displayed | □ A few posters, pictures, or books about physical activity displayed in a few rooms | □ Posters, pictures, or books about physical activity are displayed in most rooms | □ Posters, pictures, or books about physical activity are displayed in every room |
| **Physical Activity Education for Staff, Children, and Parents** | | | | |
| **A.** Training opportunities are provided for staff in physical activity (not including playground safety): | □ Rarely or never | □ Less than 1 time per year | □ 1 time per year | □ 2 times per year or more |
| **B.** Physical activity education (motor-skill development) is provided for children through a standardized curriculum: | □ Rarely or never | □ 1 time per month | □ 2-3 times per month | □ 1 time per week or more |
| **C.** Physical activity education is offered to parents (workshops, activities and take home materials): | □ Rarely or never | □ Less than 1 time per year | □ 1 time per year | □ 2 times per year or more |
| **Physical Activity Policy** | | | | |
| **A.** A written policy on physical activity that covers most of the above topics: | □ Does not exist | □ Exists informally, but is not written or followed | □ Is written, but not always followed | □ Is written and followed |

Ammerman, AS, Benjamin, SE, Sommers, JK, Ward, DS. 2004. The Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC) environmental self-assessment instrument. Division of Public Health, NC DHHS, Raleigh, NC, and the Center for Health Promotion and Disease Prevention, University of North Carolina at Chapel Hill. Revised May 2007.

# Physical Development in Young Children 2 – 5 Years Olds

Motor Development refers to growth in the ability of children to use their bodies and physical skills. The different domains of physical development generally fall into:

**gross-motor skills** – development of large muscles and the ability to move from place to place or do physical activities that involve the large muscles of the body, arms and legs,

**balance/coordination skills** - development of a sense of balance and the ability to coordinate movements as to be able to perform more complex physical activities.

**fine-motor skills** – development of small muscles and the ability to control use of the hands and fee, and do activities that involve the small muscles of the fingers, toes and other parts of the body.

Gross-motor skills or large-muscle development in young children is necessary for crawling, walking, lifting and other types of physical activities. Things to remember about these large-motor skills in young children are:

- Different parts of a child's body grow at different rates. Large Muscle (LM) development occurs earliest, so Gross-Motor (GM) skills, like reaching, waving arms/legs, crawling/walking, appear first.
- Most of the physical growth occurs in a child's torso (trunk of the body) throughout the first year of life.
- Toddlers and preschoolers have a higher center of gravity. They are more prone to falls because the legs and body are not yet developed in proportion to the upper body region.
- The child's body proportions are more like an adult's, with the center of gravity more centrally located to help them achieve a sense of physical balance by age 6.
- Children are actively using their large muscles in running, wiggling and jumping by age 3 and 4. Since LM develop first, providing opportunities for outdoor play and physical activity or indoor running around is important.

## Description of Typical Motor Skills for 2 Year Olds

*Toddlers (2 year olds)*

- Walks alone
- Walks backward
- Pulls toys behind while walking
- Carries large toy or several toys while walking
- Walks up stairs while holding onto something
- Begins to run
- Stands on tiptoe
- Throws a ball with overhand motion
- Kicks a ball
- Rolls a ball back to a person

- Imitate more complex motor skills, such as lifting objects
- Jumps in place or over small obstacles
- Jumps off a step without falling, maintains balance
- Goes up and down a slide with help
- Sits on or peddles a tricycle with support
- Participates in creative movement, such as dance

- **J**umping will usually take the appearance of arms stationary or "wing" at side, one foot used for take-off; knees extend first; more vertical than horizontal.
- **O**verhand throwing is manipulated by the hand coming back by flexing the elbows; throw is completed by extending the elbows. No trunk or foot motion.
-**W**hen kicking an object the leg will be the hinge action; ball is pushed forward.
-**W**hen catching the arms are held out rigidly; ball is trapped against chest and there will be no movement toward ball.

## General Large Muscle Activities for Two Year Olds

- Go for lots of walks. Walk on various surfaces – grass, gravel, sand. Challenge their balance and help them learn better skills, walk on anything uneven.
- Two's like to jump. Use pillows, mattresses, and cushions for softening the landing on the floor.
- Use low slides at the playground.
- Get on the floor with toddlers. Children love having adults on their level.

**Variations to activities that providers already do with two year olds:**

- Children can **color** on a large piece of paper on the floor on their hands and knees. This activity helps to strengthen the hips and shoulders as well as encourage them to weight shift.
- Place paper on a wall, wall easel, of floor easel. Place pillows, cushions, or mats by the paper. To assist children with their balance, have children stand on the soft surface to **color**. This works for table top activity as well.
- Put paper on a stool or use something that is similar in height. Children can **color** on paper from their knees. The children will have to raise their bottom from off of their heels/calves. Uses strength and stability in the hip muscles.
- Tape paper to the wall. Child can lie on their back and lift their legs. Using a color between their toes they can use legs and feet to **color**. It is a great exercise to strengthen the legs and work on motor planning to determine how to succeed.

- Different textures for **balls** are good for developing tactile processing. Bumpy, "koosh", squishy, different shapes, etc.
- Kicking a **ball** allows the children to support themselves and shift their weight to one foot in order to kick it.
- Throwing **balls** requires balance, coordination, and the use of two hands. Place a tall block (cardboard blocks work well or cheese boxes) in front of them and have fun throwing the ball to hit the tower.
- While child is lying on the stomach and keeping their legs straight, they can hit a beach **ball** with a paper towel roll tube. Child will raise chest or lift backs to hit the ball.
- Hang a **ball** from a tree limb or the ceiling and encourage the child to reach up and jump to hit the ball.

- Children will have to bend down and pick up **blocks** when standing to build a tower. This will exercise the muscles in the back, legs, and abdominal area.
- Kick down **blocks** that have been built up.
- Step over **blocks** that have been lined up.

- Build a tower at the end of a mat or carpet piece. Children can roll, crawl or perform another movement into the tower to knock the **blocks** down. Child can rebuild the tower for the next child in the game.

- **Bubbles** are fun to march on or step on as they come to the ground. Children like to walk, jump, or stomp on bubble wrap. Create different "animal walks" down the strip.
- Encourage children to reach up onto their toes to pop the **bubbles**.

- **Obstacle courses** can use anything you already own to have children run, walk, or ride through.
- Jump ropes can be part of the **obstacle course**. Laid out on the ground, the jump rope can be two lines to walk through the obstacle course or they can jump over the rope.
- Hula hoops can be used in an **obstacle course** for stepping into and out of, or jumping into and out of.
- Cones can be used in an **obstacle course** for walking around or riding bikes or other toys around them.
- Cleaned used tires can be used in **obstacle courses**. Pushing tires, bouncing on tires, or stepping in and out of the tire.

- Sticky contact paper placed on the floor is fun to walk around on it.
- "Ring Around the Rosie" and the "Chicken Dance" are a way to have the child side step and lower and raise themselves from the ground.
- Make a "mountain" with blankets, pillows, inner tubes and place a large blanket over it. Children can walk, roll, and climb over the "mountain"
- Pose into many positions. Hold it for about 5-10 seconds before changing to another position. Encourage children to copy what you do.

**Creativity is the key! Play and have fun!** Find your creative side and make up games and activities as you go along through the day. Go for it!

*"Sensory Motor Activities for the Young Child".* Donna Staisiunas Hurley, Imaginart International, Inc. 1961.
"Sensory Processing Disorder", http://www.sensory-processing-disorder.com/gross-motor-activities-for-toddlers.html.

## Description of Typical Motor Skills for 3 – 5 Year Olds

### *Three Year Olds*

- Walks a few steps on tiptoe
- Walks backward long distances
- Can perform a standing broad jump (using a two-footed takeoff and covering some distance
- Balances on one foot for 5 seconds
- Changes speed, direction, and style of movement on signal
- Executes one to three hops on preferred foot (often stepping on non-supporting foot)
- Gallops with preferred foot leading (although 3 year olds don't commonly practice this)
- Moves forward and backward with agility
- Catches bounced ball most of the time
- Throws a ball 5 – 10 feet with overhand motion
- Walks up and down stairs with minimal support
- Kicks ball forward
- Moves or sways in rhythm to music

### *Four Year Olds*

- Walks on tiptoe for long distances, walks a 4-inch balance beam
- Balances on tiptoes and on one foot for approximately 10 seconds

- Swings, climbs
- Executes seven to nine hops on the preferred foot
- Gallops with a steady rhythm (still with preferred foot leading)
- Performs four or more successive slides in the same direction
- Catches a ball with some practice
- Throws a ball 10 – 15 feet with overhand motion
- Walks up and down stairs
- Hops on one foot, somersaults
- Marches or dances in rhythm to music

*Five Year Olds*

- Runs with energy and coordination
- Walks a 2-inch balance beam
- Skips continuously over approximately 20 – 30 feet, although usually with an uneven (short-long) rhythm
- Catches a ball with some practice
- Throws a ball 5 to 15 feet with overhand motion
- Walks up and down stairs alone
- Hops on one foot for long distances, holding free foot to rear and using arms for balance
- Rides a tricycle and steers well
- Marches or dances in rhythm to music

Typical Patterns of Performance

| SKILLS | 3-Year-Olds | 5-year-olds |
|---|---|---|
| Running | Shifts from flat-footed running to running heel-toe, and begins to use the arms in opposition to legs. | Runs with competence with heel-toe contact and arm-leg opposition, and heel to buttocks as the leg comes through. |
| Hopping | Stands on one foot, with free leg flexed to 90 degrees and in front of support leg. Arms are flexed at the elbows. Has difficulty leaving the ground. | Stands on one foot, with the free foot along-side the support leg. The body leans forward a little on take-off, and the hop is of a greater distance. Arms help to swing the body off the ground. |
| Skipping | Typically will not skip in an alternating step/ hop pattern. | Uses a deliberate step/hop pattern that looks like a skip, typically with an exaggerated step or hop. Often can't keep up the rhythmical skip pattern over distance. |
| Standing Long Jump | Jumps from two feet to two feet, with more upward than forward motion. The body shows little forward lean on take-off. Arms sing back toward the body on take-off. | Arms swing forward and back before take-off, but out to the side in the air like a winging action. The body is still more upright on take-off, and jump distance is not great. As the child advances, the arms swing forward but not higher than the head. The take-off angle is less than 45 degrees. |

Typical Patterns of Performance

| SKILLS | 3-Year-Olds | 5-year-olds |
|---|---|---|
| Kicking | Is stationary behind the ball. The kicking foot picks up in front of the support leg and kicks the ball forward by extending the kicking leg. As the child advances, child is still stationary behind the ball but swings the kicking leg behind the support leg and then quickly extends the kicking leg to make contact with the ball and kick it forward. | Takes two to three deliberate steps into the ball. The support leg is placed close to the ball. The kicking leg swings from behind, staying close to floor, to kick the ball. The child might step forward after the kick. |
| Catching | Presents the arms in front and tries to catch the ball by trapping it to the chest in a delayed response. As the child progresses, puts arms in front of the body, and the arms encircle the ball in a hugging action as it comes close. | Starts by presenting the arms in front of the body. Scoops the ball to the chest as it arrives to trap it, or grabs with the hands and brings it to the chest to secure. As child progresses, puts hands in the front of the body and reaches for the ball, securing it in both hands. |
| Striking | Stands stationary, facing the tossed ball. "Chops" at the ball, swinging the bat from high to low in front of the face. As the child advances, stands sideways and swings the bat across the front of the body, with the hip, trunk and shoulder rotating in one unit. | Stands sideways and swings at the ball with the bat. Steps toward the ball with the back foot (dominant hand, same foot). As child advances, stands sideways with the bat starting up by the shoulder. Swings at the ball and steps with the foot opposite to dominant hand. The bat follows through across the body. |
| Throwing | Often moves to a sideways-standing orientation; the throwing arm "slings" the ball by swinging across the body, with the hips, trunk and shoulders moving as one unit. | Steps and throws to the target. At first, the step is with the same foot as throwing hand. As child advances, steps with one foot, throws with the opposite arm. The arm comes from the ear, with little or no wind-up before the throw. |



"Active Start: A Statement of Physical Activity Guidelines for Children From Birth to Age 5", 2nd Ed. (2009) http://www.AAHPERD.org , National Association of Sport and Physical Education.

**Physical developmental health watch**:

Because each child develops in their own particular manner, it is difficult to tell exactly when or how they will perfect a given skill. If the child displays the following signs of possible developmental delay for their age range, alert the

parent to have a possible discussion with their pediatrician. Don't be alarmed if the child's development takes a slightly different course.

Two Year Old

- Cannot walk by eighteen months
- Fails to develop a mature heel-toe walking pattern after several months of walking, or walks exclusively on this toes.
- Cannot push a wheeled toy by age two

Three – Four Year Old

- Cannot throw a ball overhand
- Cannot jump in place
- Cannot ride a tricycle

"Caring for Your Baby and Young Child: Birth to Age 5. (American Academy of Pediatrics. 2009.

# MOVEMENT AWARENESS

(WHAT THE BODY DOES)

| *TERMS* | *MOVEMENT DESCRIPTION* |
|---|---|
| **STABILIZING MOVEMENTS** | |
| Swaying | Not moving at the bottom, but moving at the top |
| Swinging | Not moving at the top, but moving at the bottom |
| Hanging | Fasten to a point above without support from below |
| Twisting | Rotation of one part of the body against another part which remains fixed and does not move |
| Turning | Change or reverse direction |
| Balance | Equalize weight or force |
| Curling | Movement of the parts of the body toward its center |
| Standing | Stationary, remaining upright |
| Sitting | No movement from a position on the bottom |
| Squatting | Crouching position, knees bent, bottom on or near the heels |
| Kneeling | Bend or rest on knee or knees |
| Pulling | Apply force to move something toward or with |
| Pushing | Apply force to move something away |
| Stretching | Moving away or elongation of body parts |
| Bending | Movement at a joint or joints |
| Shaking | Move to and fro with jerking motions |
| Dodging | Avoid something by moving quickly aside |
| Landing | Coming to rest or stop position |
| Transferring Body Weight | Movement from hands to feet and feet to hands |
| **TRAVELING MOVEMENTS** | |
| Walking | Slow gait and both feet provide double support |
| Climbing | Using hands and feet to go vertical up an object |
| Crawling | Movement involving hands and knees 1-2-3-4 |
| Marching | Exaggerate a walking step |
| Gliding | Skating action |
| Running | Walking with fast speed or when both feet are off the ground in a fast gait |
| Leaping | Jumping from one foot and landing on the other foot |
| Jumping | Springing off with two feet and landing on two feet |
| Hopping | Springing off on one foot, landing on the same foot |
| Gallop | Step, chase…step, chase (Exaggerate a slide step) |
| Slide | Step, chase…step, chase in sideways position |
| Skipping | Step, hop…step, hop with alternating foot forward |

## MANIPULATING OBJECTS WITH MOVEMENTS

| | |
|---|---|
| Throwing - Underhand and Overhand | Prepare, build momentum, propel object, follow through and maintain body balance (toss) |
| Rolling | Transferring weight to adjacent body parts around a central axis |
| Catching | Receive and control an object by body or its parts |
| Kicking - Punting | Contacting a ball with foot while maintaining balance for it to go far and straight |
| Trapping | Catching and holding object |
| Opening | |
| Closing | |
| Striking – Volleying and Dribbling | Propel an object away from the body with a hit, punch or tap (Upward, Downward) |
| Object Handling | |

# SPACE AWARENESS

(WHERE THE BODY MOVES)

Self Space Shared Space

### DIRECTION

Up Down Right Left Forward Backward Sideways
Clockwise Counter Clockwise

### LEVELS

Low Middle High

### PATHWAYS

Straight Curved Zigzag

### EXTENSIONS

Large Small Far Near

# EFFORT AWARENESS

(HOW THE BODY MOVES)

### TIME - SPEED

Slow Medium Fast Speeding Up Slowing Down
Sudden Quick Sustained

| RHYTHM | SOUND |
|---|---|
| Beats | Loud |
| Cadence | Quiet |
| Patterns | Soft |

## FORCE - MUSCLE TENSION

DEGREES OF

| Light | Medium | Strong | Weak | Heavy |
|---|---|---|---|---|

CREATING

| Starting | Sustained | Explosive |
|---|---|---|

ABSORBING

| Stopping | Receiving |
|---|---|

## CONTROLLING EFFORT

WEIGHT TRANSFER

| Rocking | Stepping | Rolling | Flight |
|---|---|---|---|

DIMENSIONS

| Single Movement | Combination of Movements | Transitions |
|---|---|---|

# RELATIONAL AWARENESS

(AWARENESS OF SELF, OTHERS, AND OBJECTS)

## BODY PARTS

Head
Hand
Ears
Eyes
Nose
Leg
Knee
Foot
Arms
Fingers
Wrist

Elbow
Ankles
Toes
Shoulder
Neck
Stomach
Back
Bottom
Hips
Chest

| SHAPES | | | | | |
|---|---|---|---|---|---|
| Big | Curved | Wide | Narrow | Triangle | Circle |
| Small | Straight | Thin | Twisted | Square | Rectangle |
| Symmetrical | | | | NonSymmetrical | |

| ROLES | | | |
|---|---|---|---|
| Leading | Mirroring | Taking Turns | Partner |
| Following | Matching | | Solo |
| Groups…Between Groups | | Unison…Contrast | |

| ASSOCIATION | | | | |
|---|---|---|---|---|
| Letters | Numbers | Colors | Hand Signs | Pretense |

| LOCATIONS | | | |
|---|---|---|---|
| Near to…Far from | On…Off | In…Out | Over…Under |
| Around…Through | In front…Behind | Together…Apart | Top…Bottom |
| Facing…Side by Side | Meeting…Parting | Surrounding…Alongside | |



*Physical Education: A Movement Orientation, 2nd Ed., by Sheila Stanley, 1977, New York: McGraw-Hill*

# PHYSICAL DEVELOPMENTAL SKILL ASSESSMENT

## 2 - 5 Year Olds

| LOCOMOTOR SKILLS | NOT OBSERVED /CANNOT DO | OCCASIONALLY DOES | CONSISTENTLY DOES |
|---|---|---|---|
| **Two to Three Year Olds** | | | |
| Walks across room | | | |
| Uses a hurried walk | | | |
| Walks backwards | | | |
| Pushes riding toy with feet while steering | | | |
| Uses a walker to get to the table | | | |
| Marches around room | | | |
| Walks up stairs with both feet on each step | | | |
| Walks up and down stairs alternating feet, holding the handrail or with help | | | |
| Jumps in place, two feet together | | | |
| **Three to Four Year Olds** | | | |
| Runs | | | |
| Avoids obstacles and people while moving | | | |
| Starts and stops using wheelchair | | | |
| Walks up and down stairs alternating feet | | | |
| Climbs at least two rungs of a jungle gym | | | |
| Climbs up and down on playground equipment | | | |
| Rides tricycle using feet to push forward | | | |
| Rides tricycle using pedals | | | |
| Gallops, but not smoothly | | | |
| Jumps over objects or off a step/box | | | |
| **Four to Five Year Olds** | | | |
| Runs smoothly, quickly, changes directions, stops/starts quickly | | | |
| Steers wheelchair into small playground spaces | | | |
| Jumps and spins | | | |
| Marches | | | |
| Moves through obstacle course | | | |
| Gallops and skips with ease | | | |
| Plays “Follow the Leader” using a variety of traveling movements | | | |
| Plays games that require jumping or kicking the ball | | | |

"Preschoolers Moving and Learning", (The Moving and Learning Series). Rae Pica and Richarrd Gardzina. January 1990.

"Toddlers Moving and Learning", (The Moving and Learning Series). Rae Pica and Richard Gardzina. January 1990.

## BALANCING SKILLS

| | NOT OBSERVED /CANNOT DO | OCCASIONALLY DOES | CONSISTENTLY DOES |
|---|---|---|---|
| **Two to Three Year Olds** | | | |
| Squats to pick up toys | | | |
| Stands on tiptoes to reach something | | | |
| Gets in and out of adult chair | | | |
| Kneels while playing | | | |
| Straddles a taped line on the floor | | | |
| Sidesteps across beam or sandbox edge | | | |
| **Three to Four Year Olds** | | | |
| Walks forward along sandbox edge, watching feet | | | |
| Jumps off low step, landing on two feet | | | |
| Jumps over small objects | | | |
| Holds body upright while moving wheelchair forward | | | |
| **Four to Five Year Olds** | | | |
| Hops across the playground | | | |
| Hops on one foot then the other | | | |
| Walks across beam or sandbox edge forward and backwards | | | |
| Attempts to jump rope | | | |
| Hops, skips or twirls around and stops without falling | | | |

## MANIPULATIVE SKILLS

| | | | |
|---|---|---|---|
| **Two to Three Year Olds** | | | |
| Carries a large ball while moving | | | |
| Flings a beanbag | | | |
| Throws a ball or other object by pushing it with both hands | | | |
| Catches a large, bounced ball against body with straight arms | | | |
| Kicks a stationary ball | | | |
| **Three to Four Year Olds** | | | |
| Throws a ball or other object | | | |
| Traps thrown ball against body | | | |
| Tosses bean bag into basket | | | |
| Strikes a balloon with large paddle | | | |
| Kicks ball forward by stepping or running up to it | | | |
| **Four to Five Year Olds** | | | |
| Steps forward to throw ball and follows through | | | |
| Catches a thrown ball with both hands | | | |
| Throws a hand sized ball | | | |
| Dribbles a ball | | | |
| Strikes stationary ball | | | |
| Bounces and catches ball | | | |
| Kicks moving ball while running | | | |
| Pounds with, shakes, twists, or swings an arm or a leg | | | |